

WHAT IS CLAIMED IS:

1. a hydraulic nut comprising:
  - (A) an annular nut body having a thickness  $T$  and having an annular chamber in one face thereof;
  - (B) a piston coaxially disposed in said chamber and axially displaceable therein, said piston having a radially extending protrusion;
  - (C) a displacement bar removably mounted on said protrusion and extending across the periphery of said nut body in a direction substantially parallel to the axis of said nut body;
  - (D) said displacement bar having a length  $L = T + a$  where "a" is a predetermined distance for axial movement of said piston.
2. A hydraulic nut as claimed in Claim 1, wherein said nut body is internally threaded.
3. A hydraulic nut as claimed in Claim 1, wherein said nut body further comprises a fluid passage operatively communicating with said chamber.
4. A hydraulic nut as claimed in Claim 1, wherein said protrusion comprises a pair of opposed lugs defining a slot therebetween.
5. A hydraulic nut as claimed in Claim 4, wherein said lugs each have a through bore, said displacement bar has a through bore at one end thereof, said displacement bar is disposed in said slot with said through bores in alignment, and a locking pin is inserted in said bores to secure the displacement bar in place.

6. A hydraulic nut as claimed in Claim 1, wherein said piston further comprises an outwardly directed annular flange, wherein said protrusion extends outwardly from said flange.

7. A hydraulic nut as claimed in Claim 1, wherein said piston further comprises an inwardly directed annular flange.

8. A device for determining the displacement of a piston in a hydraulic nut which comprises:

(A) an annular nut body having a thickness T and having an annular chamber in one face thereof; and

(B) said piston coaxially disposed in said chamber and axially displaceable therein, said piston having a radially extending protrusion;

said device comprising:

(C) a displacement bar removably mounted on said protrusion and extending across the periphery of said nut body in a direction substantially parallel to the axis of said nut body;

(D) said displacement bar having a length  $L = T + a$  where "a" is a predetermined distance for axial movement of said piston.

9. A hydraulic nut as claimed in Claim 8, wherein said nut body is internally threaded.

10. A hydraulic nut as claimed in Claim 8, wherein said nut body further comprises a fluid passage operatively communicating with said chamber.

11. A hydraulic nut as claimed in Claim 8, wherein said protrusion comprises a pair of opposed lugs defining a slot therebetween.

12. A hydraulic nut as claimed in Claim 11, wherein said lugs each have a through bore, said displacement bar has a through bore at one end thereof, said displacement bar is disposed in said slot with said through bores in alignment, and a locking pin is inserted in said bores to secure the displacement bar in place.

13. A hydraulic nut as claimed in Claim 8, wherein said piston further comprises an outwardly directed annular flange, wherein said protrusion extends outwardly from said flange.

14. A hydraulic nut as claimed in Claim 8, wherein said piston further comprises an inwardly directed annular flange.

15. A method for mounting a hollow article on a shaft comprising:

- (A) sliding said hollow article on said shaft until it reaches a first position;
- (B) providing a hydraulic nut which comprises:
  - (1) an annular nut body having a thickness  $T$  and having an annular chamber in one face thereof;
  - (2) a piston coaxially disposed in said chamber and axially displaceable therein, said piston having a radially extending protrusion;
  - (3) a displacement bar removably mounted on said protrusion and extending across the periphery of said nut body in a direction substantially parallel to the axis of said nut body;
  - (4) said displacement bar having a length  $L = T + a$  where  $a$  is a predetermined distance for axial movement of said piston, one end of

said displacement bar extending past an exposed face of said nut body by an amount equal to “a”;

(C) mounting said nut body on said shaft with said piston abutting said hollow article;

(D) applying pressure to said piston to move it axially until the end of said displacement bar is flush with the exposed face of said nut body, whereby said piston pushes said hollow article a distance equal to “a” to a second position on said shaft.

16. A method as claimed in Claim 15, wherein said shaft is a tapered shaft.

17. A method as claimed in Claim 16, wherein said hollow article is a bearing assembly.

18. A method as claimed in Claim 16, wherein said shaft has an externally threaded portion, said nut body is internally threaded, and said nut body is screwed onto said shaft.

19. A method as claimed in Claim 16, wherein pressure is applied to said piston by admitting a fluid under pressure to said chamber through a fluid passage operatively communicating with said chamber.

20. A method as claimed in Claim 19, wherein said fluid is an oil.

21. A method as claimed in Claim 15, wherein said protrusion comprises a pair of opposed lugs defining a slot therebetween.

22. A method as claimed in Claim 21, wherein said lugs each have a through bore, said displacement bar has a through bore at one end thereof, said displacement bar is disposed in said slot with said through bores in alignment,

and a locking pin is inserted in said bores to secure the displacement bar in place.

23. A method as claimed in Claim 15, wherein said piston further comprises an outwardly directed annular flange, wherein said protrusion extends outwardly from said flange.

24. A method as claimed in Claim 15, wherein said piston further comprises an inwardly directed annular flange.

25. A method as claimed in Claim 15, wherein said hollow article is an adapter sleeve and a further hollow article is mounted on said adapter sleeve.

26. A method for demounting a hollow article from a shaft comprising:

(A) providing a removal sleeve on said shaft until it reaches a first position;

(B) restraining said hollow article from axial movement;

(C) providing a hydraulic nut which comprises:

(1) an annular nut body having a thickness  $T$  and having an annular chamber in one face thereof;

(2) a piston coaxially disposed in said chamber and axially displaceable therein, said piston having a radially extending protrusion;

(3) a displacement bar removably mounted on said protrusion and extending across the periphery of said nut body in a direction substantially parallel to the axis of said nut body;

(4) said displacement bar having a length  $L = T + a$  where  $a$  is a predetermined distance for axial movement of said piston, one end of

said displacement bar extending past an exposed face of said nut body by an amount equal to “a”;

(D) mounting said nut body on said shaft with said piston abutting said removal sleeve;

(E) applying pressure to said piston to move it axially until the end of said displacement bar is flush with the exposed face of said nut body, whereby said piston pushes said adapter sleeve a distance equal to a to a second position on said shaft, thereby forcing said adapter sleeve between said shaft and said hollow body;

(F) removing said nut body from said shaft;

(G) mounting a nut body of a hydraulic nut on an externally threaded end of said removal sleeve such that the piston of said last-mentioned hydraulic nut bears against said hollow body;

(H) applying pressure to the piston of said last-mentioned hydraulic nut to thereby force said removal sleeve off said shaft; and

(I) removing said hollow body from said shaft.